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dicyclohexylamine salt of trifluoroacetylglcylglycine: Weygand, *Reiber, Ber.* 88, 26 (1955).

Crystals from dil alc. Crystal shape described as small tetrahedral leaves with a lustrous ball in center. Dec 262-264°. pK_1 3.12; pK_2 8.17. Heat of combustion: 472.4 kcal/mole. Soluble in hot water; slightly sol in ethanol. Practically insol in ether.

Hydrochloride, $C_{12}H_{19}N_2O_3 \cdot HCl \cdot H_2O$; crystals from water + ethanol.

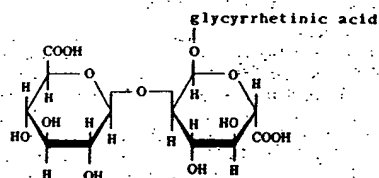
Ethyl ester hydrochloride, crystals from abs ethanol, dec 182°.

USE: In the synthesis of more complicated peptides.

4400. Glycyrrhiza. Licorice; liquorice; sweet root. Dried rhizome and roots of *Glycyrrhiza glabra* L., var. *typica* Regel & Herder (Spanish licorice), or of *G. glabra* L., var. *glandulifera* (Waldst. & Kit.) Regel & Herder (Russian licorice), or of other varieties of *G. glabra* yielding a yellow and sweet wood, *Leguminosae*. *Habit.* Southern Europe to Central Asia. *Constit.* 6-14% glycyrrhizin (the glucoside of glycyrrhetic acid), asparagine, sugars, resin. Used chiefly in the form of glycyrrhiza syrup. *Incompat.* Acids, metallic salts.

USE: Extract and syrup as pharmaceutical aids (flavor and flavored vehicles).

4401. Glycyrrhizic Acid. 20 β -Carboxy-11-oxo-30-norolean-12-en-3 β -yl-2-O- β -D-glucopyranuronosyl- α -D-glucopyranosiduronic acid; glycyrrhizin; glycyrrhizic acid; glycyrrhizic acid glycoside. $C_{42}H_{64}O_{16}$; mol wt 822.92. C 61.30%, H 7.59%, O 31.11%. Extraction from *Glycyrrhiza glabra* L.; *Leguminosae*: Karrer, Chao, *Helv. Chim. Acta* 4, 100 (1921); Ruzicka, Louenberger, *ibid.* 19, 1402 (1936). From commercial glycyrrhizinum ammoniacale: Tschirch, Cederberg, *Arch. Pharm.* 245, 97 (1907); Voss et al., *Ber.* 70, 122 (1937). Revised method of isoln: Conn, Conn, *J. Lab. Clin. Med.* 47, 20 (1956). Structure: Lythgoe, Trippett, *J. Chem. Soc.* 1950, 1983. Alternate view: Marsh, Levy, *Biochem. J.* 63, 9 (1956). Review: Nieman, *Chem. Weekbl.* 48, 213 (1952). Synthesis of derivatives: Brieskorn, Sax, *Arch. Pharm.* 303, 905 (1970).

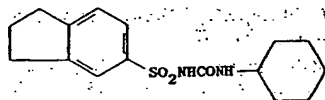


Crystals from glacial acetic acid. Intensely sweet taste. $[\alpha]_D^{25} +46.2^\circ$ ($c = 1.5$ in alc). Freely sol in hot water, alcohol; practically insol in ether.

Ammonium glycyrrhizinate pentahydrate, $C_{42}H_{64}NO_{16} \cdot 5H_2O$, needles from 75% aqueous ethanol, decomp 212-217°. $[\alpha]_D^{25} +46.9^\circ$ ($c = 1.5$ in 40% ethanol). uv max: 248 nm (ϵ 11,400). Sol in ammonia water, glacial acetic acid.

Dipotassium salt, $C_{42}H_{60}K_2O_{16}$, *Rizinsan K2 A2*.

4402. Glyhexamide. *N*-[(Cyclohexylamino)carbonyl]-2,3-dihydro-1H-indene-5-sulfonamide; 1-cyclohexyl-3-(5-indanylsulfonyl)urea; 1-cyclohexyl-3-(5-hydrindenylsulfonyl)urea; SQ 15860; Subose. $C_{16}H_{21}N_3O_3$; mol wt 322.45. C 59.60%, H 6.88%, N 8.69%, O 14.89%, S 9.95%. Prep from hydrindene-5-sulfonamide and cyclohexyl isocyanate: Hoehn, Breuer, U.S. pat. 3,097,242 (1963 to Olin Mathieson). Clinical pharmacology: Grinnell, et al., *Am. J. Med. Sci.* 253, 312 (1967).

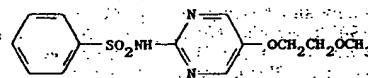


Crystals from 70% acetone, mp 153-155°.

THERAP CAT: Antidiabetic.

4403. Glymidine. *N*-[5-(2-Methoxyethoxy)-2-pyrimidinyl]benzenesulfonamide; 2-benzenesulfonamido-5-(β -meth-

oxyethoxy)pyrimidine; glycodiazine. $C_{13}H_{15}N_3O_3$; mol wt 309.35. C 50.47%, H 4.89%, N 13.58%, O 20.69%. S 10.37%. Prep: Belg. pat. 609,270 corresp to H. Priewe et al., U.S. pat. 3,275,635 (1962; 1966 to Schering, AG); Gutsche et al., *Arzneimittel-Forsch.* 14, 373 (1964). Series of articles on pharmacology: *ibid.* 377-412. Activity: Losert et al., *ibid.* 23, 1251 (1973). Metabolism: Soyfer et al., *Chim. Ther.* 5, 441 (1970).

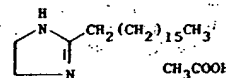


Crystals, mp 152-154°. Soly in ethanol: 0.91%; in toluene: 0.67%.

Sodium salt, $C_{13}H_{14}N_3NaO_3$, *SH 717, Glyconorm*; Gonda, *Lycanol, Redul*. Crystals, mp 221-226°. Sparingly sol in alc. Soly in water at 37°: 70.5%. LD₅₀ in mice, rat (g/kg): 1.48, 2.00 i.v.; 5.30, 2.85 orally, Kramer et al., *Arzneimittel-Forsch.* 14, 377 (1964).

THERAP CAT: Antidiabetic.

4404. Glyodin. 2-Heptadecyl-4,5-dihydro-1H-imidazole monoacetate; 2-heptadecylglyoxalidine acetate; Crag Fruit Fungicide 341. $C_{27}H_{49}N_2O_3$; mol wt 368.59. C 71.68%, H 12.03%, N 7.60%, O 8.68%. Prep from stearic acid and ethylenediamine: Kiff, U.S. pat. 2,540,171 (1951 to Union Carbide and Carbon).



Light orange crystals, mp 62-68°. d_4^{20} 1.035. Insol in water, acetone, toluene; sol in isopropanol. The base is a soft greasy wax, mp 94°.

USE: Fungicide.

4405. Glyoxal. *Ethanedial*; biformal; diformal; oxalaldehyde. $C_2H_2O_2$; mol wt 58.04. C 41.39%, H 3.48%, O 55.14%. $OHCHO$. Prep by the oxidation of acetaldehyde by nitric or selenious acid: Lubawin, *Ber.* 8, 768 (1875); Wyss, *Ber.* 10, 1366 (1877); Kölln, *Ann.* 416, 230 (1911); Riley et al., *J. Chem. Soc.* 1932, 1881; Ronzio, Waugh, *Org. Syn. coll. vol. III*, 438 (1955); by hydrolysis of dichlorodioxane: Butler, Crecher, *J. Am. Chem. Soc.* 54, 2988 (1932). Review of commercial development: J. F. Bohmfalk et al., *Ind. Eng. Chem.* 43, 786 (1951). Review: A. B. Boese et al., in *Glycols*, G. O. Curme, E. Johnston, Eds. (Reinhold, New York, 1952) pp 125-128.

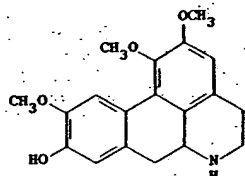
-Yellow prisms or irregular pieces turning white on cooling. d_4^{20} 1.14. Opaque at 10°, mp 15°. bp₇₆₀ 51°. The vapors are green and burn with a purple flame. *Caution:* Mixture with air may explode! n_D^{25} 1.3826. Sol in anhydrous solvents. pH of a 40% aq soln: 2.1-2.7; d_4^{20} 1.27. Polymerizes quickly on standing, on contact with water (violent reaction) when dissolved in solvents contg water. The anhydrous polymer changes to the monomer on heating. Solns of the monomer are obtained on heating the polymer with aneth phenetole, safrole, methyl nonyl ketone, or benzaldehyde. LD₅₀ orally in rats, guinea pigs: 2020, 760 mg/kg; H. Smyth et al., *J. Ind. Hyg. Toxicol.* 23, 259 (1941).

Dihydrate, $(OHCHO)_2 \cdot 2H_2O$, cryst powder, nonhygroscopic. More sol in hot water than in cold water. Commercially available in anhydrous form as cryst dihydrate, or 40% aq soln which may contain polymerization inhibitors. *Caution:* Moderately irritating to skin, mucous membranes.

USE: In textiles, organic synthesis, glues, biocides.

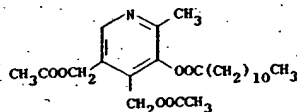
4406. Glyoxal-Sodium Bisulfite. 1,2-Dihydroxy-1,2-anedisulfonic acid disodium salt; glyoxal compound with sodium bisulfite. $C_2H_2Na_2O_5$; mol wt 266.16. C 9.01%, H 0.51%, Na 17.28%, O 48.09%, S 24.09%. Prep: R. Waugh, *Org. Syn. coll. vol. III*, 438 (1955).

5258. Laurotetanine. 5,6,6a,7-Tetrahydro-1,2,10-trimethoxy-4H-dibenzo[de,g]quinolin-9-ol; 1,2,10-trimethoxy-6aa-noraporphin-9-ol; Litsocine. $C_{29}H_{31}NO_4$; mol wt 327.37. C 69.70%, H 6.47%, N 4.28%, O 19.55%. From the bark of *Litsea citrata* Blume (*Tetranthera citrata* (Blume) Nees), Lauraceae and allied plants. Isola: Greshoff, *Ber.* 23, 3537 (1890); Filippo, *Arch. Pharm.* 236, 601 (1898). Structure: Barger et al., *Ber.* 66, 450 (1933). Synthesis: Kikawa, *C.A.* 53, 17163i (1959).



Monohydrate, needles, mp 125°. $[\alpha]_D^{25} +98.5^\circ$. Practically insol in water; freely sol in alcohol, chloroform, ethyl acetate, slightly in ether.

5259. 3-O-Lauroylpyridoxol Diacetate. Dodecanoic acid 4,5-bis[(acetyloxy)methyl]-2-methyl-3-pyridinyl ester; lauric acid ester with pyridoxol diacetate (ester); 5-lauroyloxy-6-methyl-3,4-pyridinedimethanol diacetate; 3-lauroyloxy-2-picoline-4,5-dimethanol diacetate; 2-methyl-3-lauroyloxy-4,5-diacetoxymethylpyridine; Epixine; Rosamit. $C_{37}H_{57}NO_8$; mol wt 435.54. C 66.18%, H 8.56%, N 3.22%, O 22.04%. Prepn: Belg. pat. 640,827 (1964 to Soc. Belge Azote Prod. Chim. Marly), *C.A.* 63, 587h (1965).



Crystals, mp 44°. Practically insol in water; sol in ether, chloroform, ethanol, ethylene dichloride.

THERAP CAT: Antiseborrheic.

5260. Lauryl Bromide. 1-Bromododecane; dodecyl bromide. $C_{12}H_{25}Br$; mol wt 249.24. C 57.82%, H 10.11%, Br 32.06%. $CH_3(CH_2)_{10}CH_2Br$. Prepd by the action of hydrobromic acid on primary n-lauryl alcohol in the presence of sulfuric acid: Kamun, Marvel, *Org. Syn.* 1, 7 (1921).

Liquid. bp₄ 175-180°. Insol in water. Sol in alc, ether.

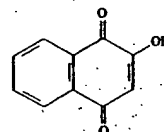
5261. Lavender. Garden lavender; true lavender. Flowers of *Lavandula officinalis* Chaix (*L. vera* DC.), Labiatae. Habit. Mediterranean region. Constit. Volatile oil.

USE: For fumigating; in perfumery; to keep moths from clothes; manuf oil lavender. Pharmaceutical aid (perfume).

5262. Lawrencium. Lr; formerly Lw; at. wt (longest-lived known isotope, $T_{1/2} \sim 3$ minutes) 260; at. no. 103; valence 3. Known isotopes 255-260. Discovery of first isotope claimed by Ghiorso et al., *Phys. Rev. Letters* 6, 473 (1961). Prepared by bombardment of californium with boron ions; originally assigned mass number 257; later changed to 258 ($T_{1/2}$ 4.2 seconds, α -emitter): Eskola et al., *Phys. Rev. C* 4, 632 (1971). Prepn of ^{256}Lr ($T_{1/2} \sim 45$ seconds) by irradiating ^{240}Am with ^{18}O ions: Donets et al., *At. Energ. (USSR)* 19, 109 (1965), *C.A.* 64, 1542c (1966). Prepn of isotopes 255-260 by bombardment of transuranium elements with heavy ions: Eskola et al., loc. cit. Reviews of history, prepn and properties: C. Keller, *The Chemistry of the Transuranium Elements* (Verlag Chemie, Weinheim, English Ed., 1971) pp 609-612; Silva, "Trans-Curium Elements" in *MFP Int. Rev. Sci.: Inorg. Chem., Ser. One* vol. 8, A. G. Maddock, Ed. (University Park Press, Baltimore, 1972) pp 71-105; Ghiorso, *Handb. Exp. Pharmacol.* 36, 691-715 (1973); Taylor, *ibid.* 717-738.

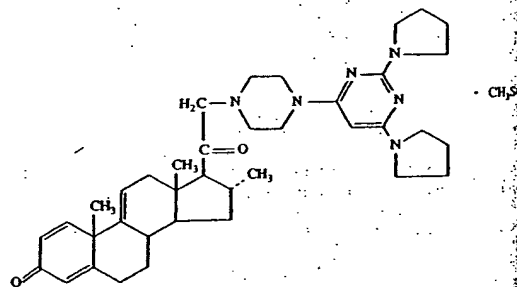
5263. Lawson. 2-Hydroxy-1,4-naphthalenedione; 2-hydroxy-1,4-naphthoquinone. $C_{10}H_6O_3$; mol wt 174.15. C 68.96%, H 3.47%, O 27.56%. From leaves of *Lawsonia in-*

mis L. and *L. alba* Lam., *Lythraceae*: Latif, *Indian J. Ag. Sci.* 29, No. 2-3, 147 (1959), *C.A.* 55, 14828g (1961). Synthesis: Fieser, *J. Am. Chem. Soc.* 70, 3165 (1948); Jam Seshadri, *Proc. Indian Acad. Sci.* 35A, 233 (1952); Eister Müller, *Ber.* 92, 2071 (1959).



Yellow prisms from acetic acid, dec 195-196°. THERAP CAT: Ultraviolet screen.

5264. Lazaroids. Novel class of nonglucocorticoid 21-aminosteroid antioxidants which inhibit lipid peroxidation. A representative compound is known as U74006F. Prepn: J. M. McCall et al., PCT Int. pat. Appl. 87 01,706 (1987 to Upjohn), *C.A.* 108, 6287u (1987). Inhibition of iron-dependent lipid peroxidation in vitro: J. M. Braughle et al., *J. Biol. Chem.* 262, 10438 (1987). Endocrinological profile in mice: J. M. Braughle et al., *J. Pharmacol. Exp. Ther.* 244, 423 (1988). HPLC determn in plasma: J. W. Cox, R. H. Pullen, *J. Chromatog.* 424, 293 (1988). In vivo attenuation of vasogenic brain edema: E. D. Hall, M. A. Travis, *Brain Res.* 451, 350 (1988). Effects on experimental head injury in mice: E. D. Hall et al., *J. Neurosurg.* 68, 456 (1988); in post-traumatic spinal cord ischemia in cats: E. D. Hall, *ibid.* 462. Review of development and potential clinical applications in trauma and stroke: J. M. McCall et al., *Acta Anaesthesiol. Belg.* 38, 417-420 (1987).



U74006F

U74006F, $C_{27}H_{36}N_2O_5S$, 21-[4-(2,6-di-1-pyrrolidinylpyrimidinyl)-1-piperazinyl]-16a-methylpregna-1,4,9(11)-triene-3,20-dione monomethanesulfonate. Monohydrate, mp 181-185° (dec). uv max: 234, 285 nm (ϵ 52000, 17000).

5265. Lazurite. Lapis lazuli; lasurite. Composition $(Na,Ca)_2(AlSiO_6)_2(SO_4,S,Cl)$. E. S. Dana, *A System of Mineralogy* (John Wiley, New York, 6th ed., 1901) pp 432-433; S. Hurlbut, Jr., *Dana's Manual of Mineralogy* (John Wiley, New York, 17th ed., 1959) p 503.

Blue, blue-violet or greenish-blue, translucent, cubic, dodecahedral crystals. d 2.4. Dec by HCl with pptn of SiO_2 and evolution of H_2S .

USE: In manuf of vases, ornamental furniture, mosaics, paints, jewelry.

5266. LBF. *Lactobacillus bulgaricus* factor. Growth factor occurring in products derived from both animal plant sources and in culture filtrate of certain microorganisms: Williams et al., *J. Biol. Chem.* 177, 933 (1949); Vinn et al., *Arch. Biochem. Biophys.* 34, 409 (1951); Peters et al., *Am. Chem. Soc.* 75, 1688 (1953). Contains pantetheine which is oxidized during purification to the disulfide, pantetheine q.v. Natural occurrence of several different forms of LBF each being a mixed disulfide of pantetheine: Rasmussen et al., *Proc. Soc. Exp. Biol. Med.* 73, 658 (1950); Bro Snell, *J. Biol. Chem.* 198, 375 (1952). Coenzyme A digested with intestinal phosphatase shows 2-4 LBF-active components: Long, Williams, *J. Bacteriol.* 61, 195 (1951). Rep